

7. THE *LATE CHALCOLITHIC* AND *EARLY BRONZE AGE* IN THE QAZVIN AND TEHRAN PLAINS: A CHRONOLOGICAL PERSPECTIVE

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Introduction

The Tehran and Qazvin plains are well suited for studying the rise and decline of cultural complexity from the sixth up to the start of the third millennium BC. The two plains are located on the southern side of the central Alburz Mountains and archaeologically have been defined as part of the north Central Plateau of Iran (Voigt and Dyson 1992). Chronologically, the fourth millennium BC of the north central plateau has been subdivided into the *Middle Chalcolithic* (c. 4000–3700 BC), *Late Chalcolithic* (c. 3700–3400 BC), and *Early Bronze Age I* (3400–2900 BC) periods (Fazeli *et al.* 2005; Pollard *et al.*, 2012). Within the first half of the fourth millennium BC, most settlements of the north Central Plateau and north-east of Iran display similar cultural materials while during the second half of the fourth millennium BC the degree of cultural uniformity changed within the above regions (see Thornton, this volume). Within the Qazvin Plain cultural affiliation shifts to the central Zagros and north-west Iran after 3400 BC. Survey and excavations within the Tehran, Kashan, Qom, and Arisman plains reveal that the *Sialk III*_{6–7} ceramics ceased being used around 3400 BC and were replaced by *Proto-Elamite* cultural material after 3300 BC. The chronological framework of such cultural subdivision, based on the recent archaeological investigations at the most important sites in the north Central Plateau of Iran, allows the proposal of a medium date for the start and end of each period within the different sites (see Table 7.1).

The *Late Chalcolithic* period, which is referred to as *Sialk III*_{6–7} on the north Central Plateau, ended around 3400 BC. This date can be confirmed by the recent radiocarbon results acquired from the excavated sites

of Tepe Ghabristan, Tappeh Sialk South, Arisman, and Qoli Darvish (Pollard *et al.*, 2012). As mentioned above, within the two regions from 3400 to 2900 BC we see the appearance of two different cultural assemblages, the so-called *Proto-Elamite/proto-literate* and the *Kura-Araxes*. Therefore, the terminology of *Early Bronze Age I* will be used here to label the period from 3400 to 2900 BC in north central Iran.

Chronology of the fourth and the early third millennia BC: general information and absolute chronology

The most important fourth-millennium BC sites on the Tehran plain include Tepe Sadeghabadi, Tepe Shoqali, Mafin Abad, Maymoon Abad, Tepe Cheshmeh-Ali, Tepe Sofalin, Tepe Pardis, and Ahmadabad Kozegaran (Fig. 7.1). Eric Schmidt's unpublished ceramic collection from Tepe Cheshmeh-Ali, which is now housed in the University of Pennsylvania Museum of Archaeology and Anthropology and the Oriental Institute of the University of Chicago, includes a range of remarkable ceramics of the *Middle Chalcolithic* period and some sherds of the *Late Chalcolithic* period (Matney *et al.*, forthcoming). During the renewed excavation of Tepe Cheshmeh-Ali in 1997 no archaeological evidence was found for the *Middle* or *Late Chalcolithic* periods (Fazeli *et al.* 2004), suggesting that the cultural layers of these periods were disturbed after the 1930s. Evidence of the *Middle* and *Late Chalcolithic* periods was documented on the surface at Tepe Pardis, but during the excavation of the site in 2004 no cultural layers from either period were recovered, suggesting that cultural material of the fourth millennium BC was cut and disturbed

Table 7.1. Modelled transition dates for each site on the Central Plateau (cal. BC).

| Cultural Period | Tepe Chahar Boneh | Tepe Ebrahim Abad | Tepe Zagheh | Tepe Ghabristan | Tepe Sagz Abad | Tepe Shizar | Arisman | Sialk N | Sialk S | Tepe Qoli Darvish | Cheshmeh-Ali | Tepe Pardis |
|---------------------------|--------------------------|------------------------|------------------------|------------------------|------------------------|-------------|------------|------------------------|------------------------|-------------------|--------------|-------------|
| Iron Age | Iron Age I | | | | End 980 Start 1450 | Start 1700 | | | | Start 1528 | | Start 1536 |
| | Late Bronze Age | | | | End 1450 Start 1780 | End 1700 | | | | End 1681 | | |
| | Middle Bronze Age | | | | | | | | | End 1857 | | |
| Bronze Age | EB II | | | | | | | | | Start 2088 | | |
| | Kura-Araxes 2900–2000 | | | | | | | | | | | |
| | EB I | | | | | | | | | | | |
| Chalcolithic | Proto-literate 3400–2900 | | | | | Start 2970 | Start 3280 | | Start 3150 | End 3002 | | |
| | Late (LC) 3700–3400 | | | End 2700 Start 3780 | End 3540 Start 3670 | End 3940 | End 3480 | | End 3814 Start 3940 | | | End 3333 |
| | Middle (MC) 4000–3700 | | | End 3780 Start 3940 | | | | | End 3940 | | | Start 4756 |
| | Early (EC) 4300–4000 | | | End 3940 Start 4390 | | | | | | | End 4691 | End 4756 |
| | Late (TC II) 4600–4300 | | | | | | | | | | Start 5167 | Start 5102 |
| Transitional Chalcolithic | Early (TC I) 5200–4600 | End 5000 Start 5120 | End 4320 Start 5380 | | | | | Start 5145 | | | | |
| Late Neolithic | Late (LN II) 5600–5200 | End 5120 Start 5530 | | | | | | End 5249 Start 5376 | | | | End 5102 |
| | Early (LN I) 6000–5600 | End 5670 Start 6010 | | | | | | End 5715 | | | | |

during the Parthian period (Coningham *et al.* 2004). In contrast, recent excavation at Tepe Shoqali indicates occupation history from the fifth to the fourth millennium BC (Hessari and Aliyari 2007), but in general there is a lack of clear excavated evidence for the *Late Chalcolithic* on the Tehran plain. Settlement survey data indicates that there was a reduction of site numbers on the Tehran plain from the *Late Chalcolithic* period onwards. The maximum site size during the *Chalcolithic* was 7 ha, suggesting that there were no large agglomerations of settled population during this period (Fazeli 2001). The settlements are located close to the riverbanks or springs, which helped villagers to access direct water resources. Some have only one phase of occupation, but most have multiple cultural phases.

The only excavated *Bronze Age I* (*Sialk IV, Proto-Elamite/proto-literate*) site of the Tehran plain is Tepe Sofalin, situated 1000 m above sea level (Hessari and Akbari 2007). The site is located to the north of the city of Pishva, very close to the borderlands of the central desert. While most *Chalcolithic* sites are located close to water sources and in areas suitable for agriculture and cultivation, Tepe Sofalin is located on the hilly flanks at the border of the plain and the desert, although it has been noted that the site sits adjacent to a large alluvial fan (Dahl *et al.*, this volume). During the first season in 2006, six trenches were opened, including three of 3×3 m, and one each of 4×4 m, 5×5 m, and 10×10 m. The 2006 season and later excavations

did not expose any evidence of architectural remains.

During the late fourth and the early third millennium BC, the size appears to have extended horizontally across an area of c. 15 ha, but this may not be an accurate indication of site size. The depth of archaeological layers of the site is less than 2 m, similar to the depth of occupation at Arisman (Helwing 2005b, this volume). *Chalcolithic* sites on the Iranian Central Plateau can typically be defined as tell sites with archaeological deposits ranging in depth from 5 to 12 m. Tepe Sofalin is clearly a different type of site, with a short period of occupation and no architecture exposed in the limited excavations.¹ Despite a lack of evidence for architectural remains or rich cultural layers at Tepe Sofalin, the ceramics of the mid- to late fourth millennium BC consist of so-called *Proto-Elamite* period forms. In addition, a large and important corpus of administrative material has been found together with the pottery at Tepe Sofalin, including a clay bulla and numerical and *Proto-Elamite* tablets. It is likely that the site was occupied for a short period of time, c. 200 years.

With regard to the chronology of the second half of the fourth millennium BC, it should be mentioned that the *Late Chalcolithic* and *Early Bronze Age* sites of the Tehran plain do not yet have any radiocarbon dates. As will be described below, the latest radiocarbon date from the *Late Chalcolithic* (*Sialk III₆₋₇*) at Tepe Sagzabad falls before c. 3550 BC. By looking at the radiocarbon results from Tepe Qoli

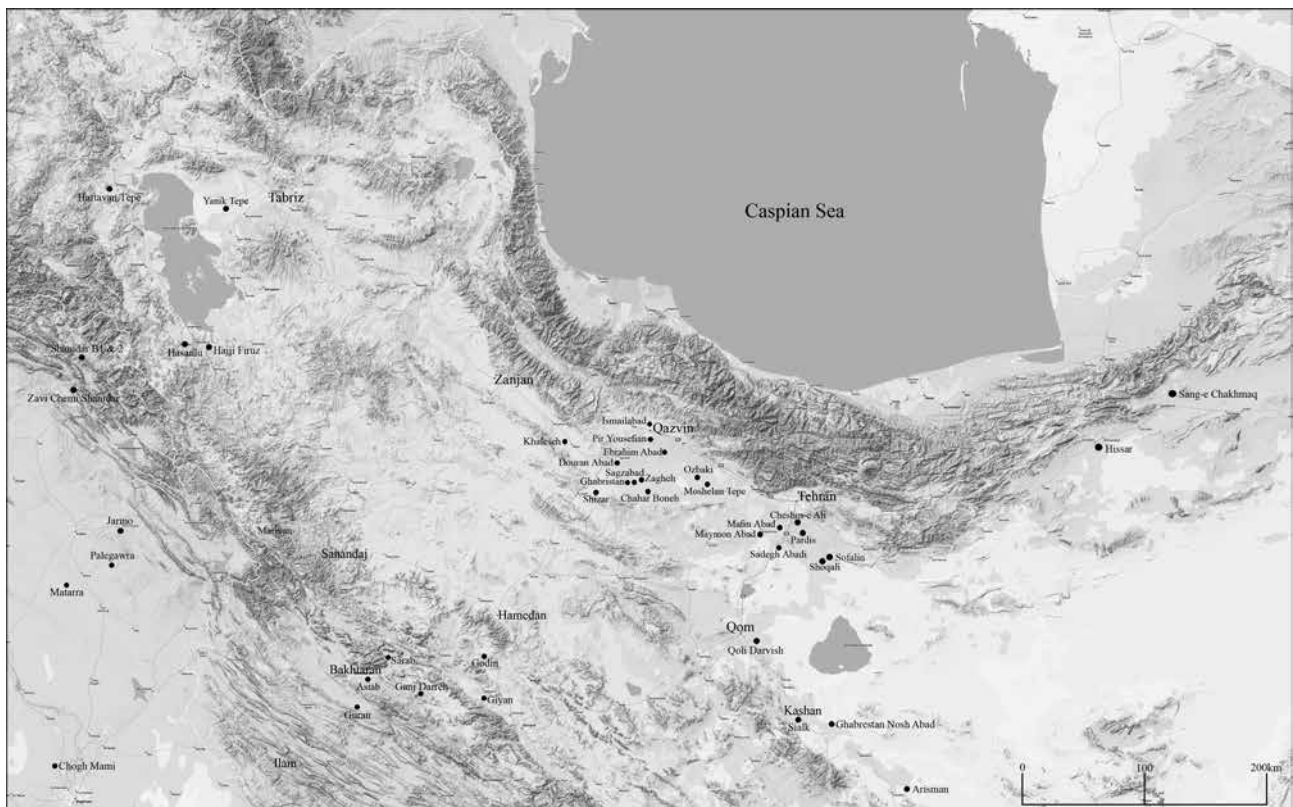


Figure 7.1. The settlement distribution of the north Central Plateau from the Late Neolithic to the Bronze Age.

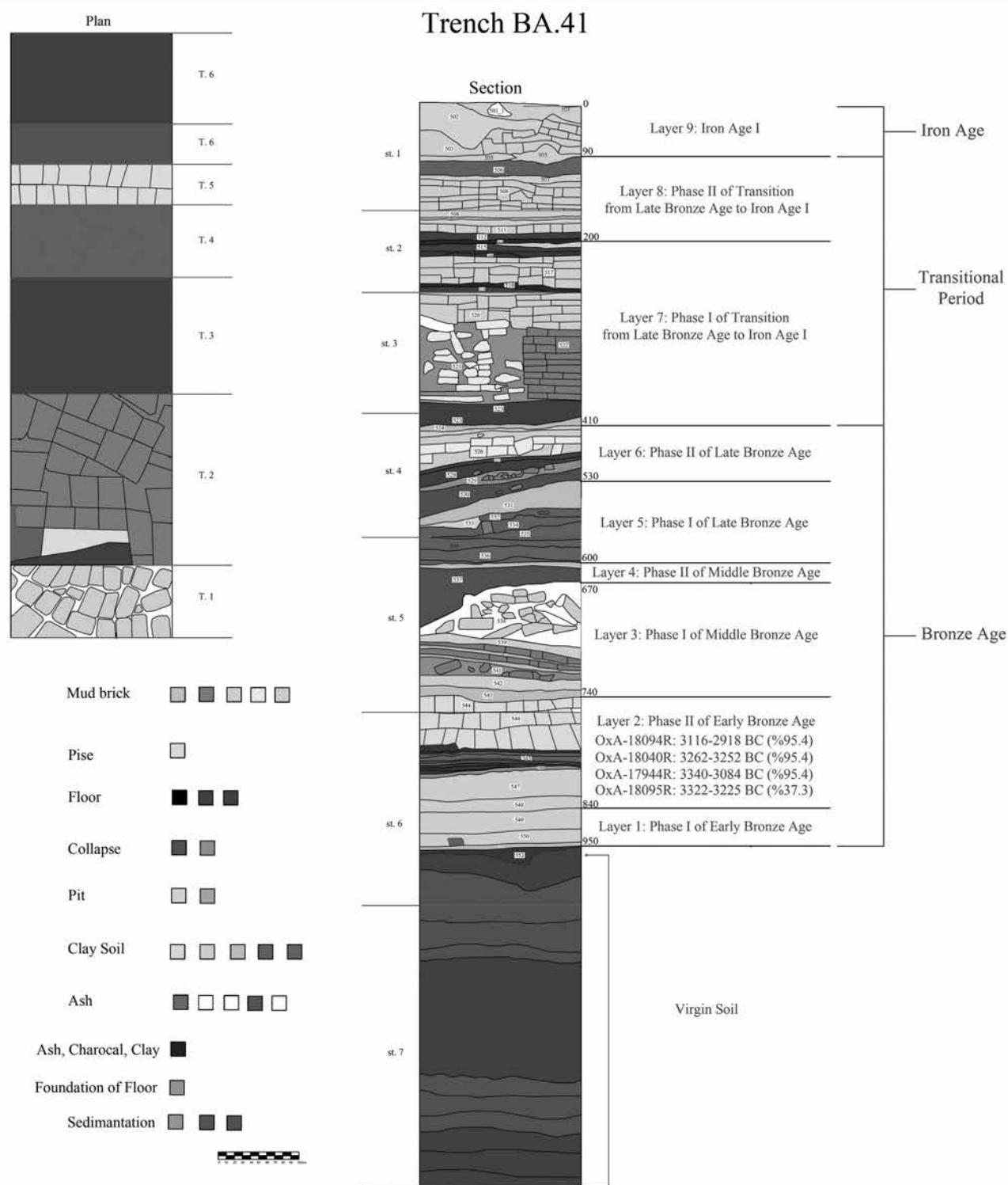
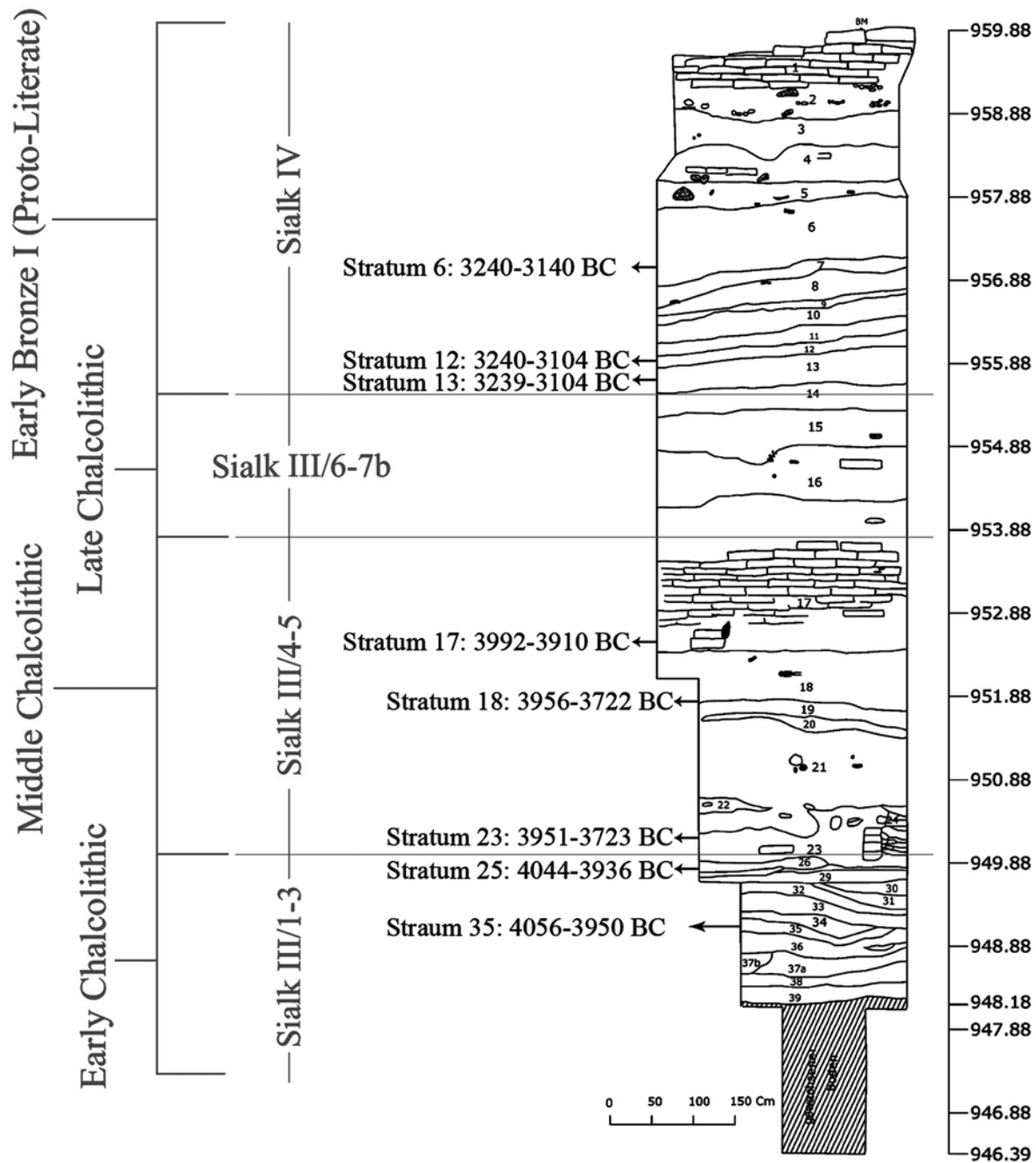


Figure 7.2. The stratigraphic sequence of Tepe Qoli Darvish trench BA.41.

Darvish (Fig. 7.2; Sarlak 2011), Tappeh Sialk South (Fig. 7.3; Nokandeh 2010), and Arisman (Helwing, this volume), however, it is possible to propose an approximate date for Tepe Sofalin. At Qoli Darvish, the *Early Bronze Age I* is defined by both *Proto-Elamite* ceramics and tablets, although the latter are very few in number. The calibration of four radiocarbon dates

from the single layer of trench BA.41 (layer 2 from the bottom) indicates a time period ranging between 3182 and 3035 cal. BC at 68%. Recent work on the *Proto-Elamite* tablets from Tepe Sofalin (Dahl *et al.*, this volume) indicates that the tablets are primarily comparable with the late *Proto-Elamite* tablets from Susa (except TSF 11). If we accept the radiocarbon



Section of Trench E1 (Nokandeh, 2010: 49, Abb. 6)

Figure 7.3. The stratigraphic sequences of Tappeh Sialk South trench E1.

date of Qoli Darvish and Dahl *et al.*'s correlation, then Tepe Sofalin potentially dates to the latest phase of the fourth millennium BC, c. 3100–2900 BC. Helwing has also categorised Tappeh Sialk *Period IV*₂ and Arisman area A and C as dating to the *Proto-Elamite* period, between 3100 and 2900 BC (Helwing 2006). Recent research carried out at Tappeh Sialk South reveals the *Late Chalcolithic* period with date ranges of 3710–3490 BC and 3760–3510 BC, indicating that the *Late Chalcolithic* period ended by c. 3500 BC. The

radiocarbon dates from Tappeh Sialk *Period IV* are as follows:

| | |
|--------------------|-------------------|
| Trench E, level 6 | 3240–3104 cal. BC |
| Trench E, level 12 | 3240–3104 cal. BC |
| Trench E, level 13 | 3239–3104 cal. BC |

(Nokhandeh 2010).

These dates are very close to the radiocarbon results of Tepe Qoli Darvish, and indicate that the beginning of *Proto-Elamite* occupation around Kashan and Tehran

started in c. 3250 BC (but see Dahl *et al.*, this volume). Information about the *Late Middle Chalcolithic* (4000–3700 BC), *Late Chalcolithic* (3700–3400 BC), *Early Bronze Age I* (3400–2900 BC), and *Early Bronze Age II/Kura-Araxes* (2900–2200 BC) on the Qazvin plain comes from excavations at four sites: Tepe Shizar, Tepe Ghabristan, Tepe Sagzabad, and Tepe Ismailabad, as well as a settlement survey undertaken in 2003 (Fazeli and Abbasnegad 2005). There is clear evidence for *Kura-Araxes* (EBaII), *Late Bronze*, and *Iron Age* ceramics from the surface of sites such as Duranabad and Pir Yousefin (Fazeli 2004) but in general, the evidence for the *Bronze Age* is limited and we suggest that the majority of the ceramics belong to the *Middle Bronze Age*. In contrast to the Tehran plain, however, for the Qazvin plain there are more secure data for the fourth millennium BC from large horizontal excavations, including stratigraphic information and radiocarbon dates. Nonetheless, as seen on the Tehran plain, after the second half of the fourth millennium BC most of the settlements of the Qazvin plain were abandoned. Occupation appears to have continued on the hilly flanks that border the Qazvin plain, but there are different settlement types and archaeological materials to those seen on the plains. Sites such as Tepe Shizar and Tepe Ismailabad are situated in areas more suitable for dry farming and also for the grazing of animals, while sites on the plains were more suitable for larger populations and agriculture based on irrigation. Recent palaeo-environmental studies (Schmidt *et al.* 2011; Maghsoudi *et al.* n.d.) within the Qazvin plain indicate that human population settled an area in order to access fresh water and appropriate soil for cultivation, making pottery and other activities. These studies also reveal that the migration of channels across the alluvial fan had affected the settlement abandonments of prehistoric communities of the Qazvin plain.

The most important settlement with fourth-millennium BC occupation on the Qazvin plain is Tepe Ghabristan with evidence for up to 700 years of occupation during the *Early*, *Middle*, and *Late Chalcolithic* periods (Fazeli *et al.* 2005). In the early 1970s E. O. Negahban, then director of the Institute of Archaeology, University of Tehran, instigated excavations at the sites of Zagheh, Ghabristan, and Sagzabad as part of a long-term project of archaeological research in the Qazvin plain that continued until 1979. At Ghabristan, several trenches were investigated, exposing 19 archaeological levels that corresponded to four cultural periods: Archaic, *Early*, *Middle*, and *Late Plateau* periods (Negahban 1973). Level 19 was the lowest level reached and was situated just above virgin soil, but no stratigraphic sequence was ever published and the chronology was established predominantly on ceramic evidence (see Fazeli *et al.* 2005). In order to understand the chronology and estimate the size of Tepe Ghabristan 11 trenches were opened during renewed excavations in 2002. Six trenches were exposed in the northern, southern, and western areas of the mound and a further five in the central region, close to the previously excavated area (Fazeli *et al.* 2005). Trenches in the northern and western sections contain natural clay deposits and graves dated to the first millennium BC. The two trenches in the south revealed only *Late Chalcolithic* materials, consisting mostly of the remains of a kiln and finds related to craft production. Only the five trenches in the central area covered the three main phases of *Early*, *Middle*, and *Late Chalcolithic* periods. All of the excavated areas so far appear to have exposed industrial areas.

Seven samples for radiocarbon dating were taken from Trench L34 (Fig. 7.4) to enable the re-evaluation of the chronology of Tepe Ghabristan (Fazeli *et al.* 2005). Trench L34 was 2 × 5 m at the surface and

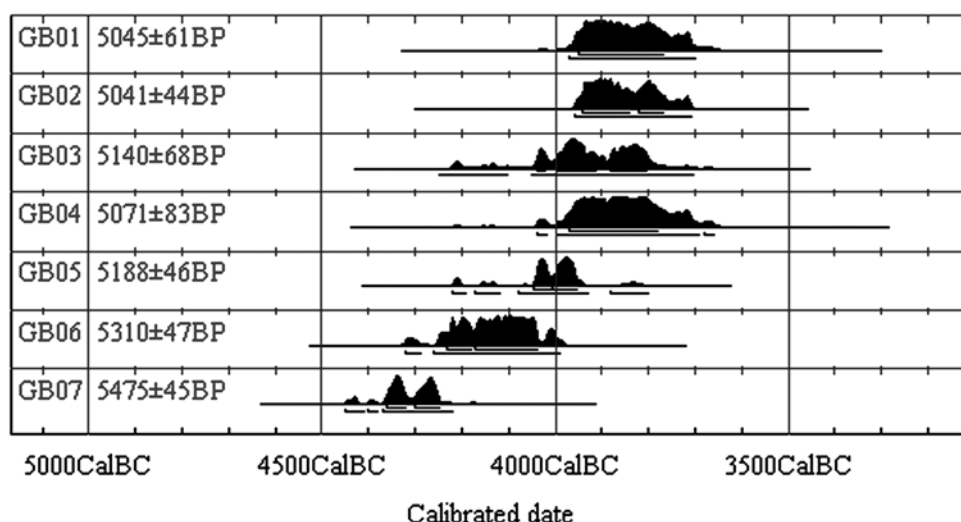


Figure 7.4. Radiocarbon dates of Tepe Ghabristan: trench L34.

reduced to 2 × 2 m at a depth of 2 m. Virgin soil was reached 5.3 m below ground surface, and an area of 4 × 2 m was exposed. A total of 18 separate layers comprising 29 contexts were identified. The two uppermost *Late Chalcolithic* layers were disturbed by illegal excavations. The first undisturbed layer was context 5, at a depth of 113 cm. A pit containing bone needles, stone tools and flakes, fragments of figurines, and round clay objects was exposed in context 8, and a further pit was revealed in context 11, where stone and copper tools, slag, and a microblade were found. Subsequent contexts contained walls, floors, and ovens. These recent excavations demonstrated that the beginning of the *Middle Chalcolithic* period at Tepe Ghabristan began c. 4000 BC and ended c. 3700 BC (Fazeli *et al.* 2005). On the basis of the 2002 excavations it was not possible to establish when the site was abandoned, but recent excavation at Tepe Sagzabad in 2008 has presented new and secure evidence for the *Late Chalcolithic* period.

The likelihood that Tepe Ghabristan was extensively occupied during the *Late Chalcolithic* period across an area of more than 15 ha is supported by the recent excavations at Tepe Sagzabad. Sagzabad is located 200 m east of Tepe Ghabristan and is approximately 12 ha in size, although most of this appears to be *Bronze* and *Iron Age* in date. The site has 10 m of archaeological deposits of which 5 are located under the modern ground surface. Unfortunately the site was very badly damaged both before and after the 1970s, and at present there is no unaffected area

suitable for horizontal excavation. For chronological purposes the team opened four vertical 2 × 2 m trenches at Tepe Sagzabad in 2008 in order to re-evaluate the chronology of the site (Fazeli *et al.* 2011). In trench IV (the south-west of the site) the team found evidence of *Late Chalcolithic* period occupation. Absolute dates from the two lower layers are 3760–3640 BC (context 4026) and 3650–3520 BC (context 4027) (Table 7.2). Also in 2008, a trench was opened in the garden situated between the two sites of Sagzabad and Tepe Ghabristan (95 m west of Tepe Sagzabad), which penetrated to a depth of 5.70 m below the ground surface. The layers in the uppermost 4 m contained only natural river sediments, but below this, between 40 and 50 cm of *Late Chalcolithic* period cultural materials consisting of animal bones and a variety of ceramics such as string-cut bases, buff ware (painted and unpainted), and bevel-rim bowls were recorded. During the 2009 excavation season, a 6 × 5 m trench was opened at Sagzabad close to trench IV to access more secure data for the *Chalcolithic* period. Of the 29 contexts exposed, 12 contained *Late Chalcolithic* ceramics, but only the lowest layer was not disturbed. The most recent excavations at Tepe Sagzabad support the theory that Tepe Ghabristan was abandoned c. 3550 BC when its size extended across more than 15 ha. The Sagzabad region was not reoccupied until around 1700 BC. The radiocarbon dates from the Tepe Sagzabad excavations indicate a c. 1700-year gap between the *Late Chalcolithic* period and the *Iron Age* occupation.

Table 7.2. Calibrated and modelled dates for Tepe Sagzabad based on archaeological period, including dates from Gif-sur-Yvette (Pollard *et al.* 2012).

| Sample no. | Trench | Context | Phase | Material | δ ¹³ C | ¹⁴ C age | Error | Range (2σ 95.4%) |
|------------|---------|---------|-------|----------|-------------------|---------------------|-------|------------------|
| Gif-10350 | O XXI/2 | L XIII | | bone | -18.0 | 2950 | 40 | 1070-900 BC |
| Gif-10349 | N XXI/2 | L IX | | bone | -19.2 | 2945 | 45 | 1300-930 BC |
| Gif-10348 | A | LXXIV | | bone | -18.0 | 2915 | 60 | 1300-1010 BC |
| Gif-10347 | A | L XXX | | bone | -19.6 | 2820 | 30 | 1300-1030 BC |
| OxA-20663 | II | 2006 | IA I | charcoal | -23.7 | 2912 | 31 | 1250-1010 BC |
| OxA-20661 | II | 2008 | IA I | charcoal | -25.6 | 2935 | 29 | 1260-1040 BC |
| OxA-20662 | II | 2015 | IA I | charcoal | -22.6 | 3041 | 30 | 1410-1210 BC |
| OxA-20548 | II | 2017 | IA I | charcoal | -25.7 | 3082 | 32 | 1425-1270 BC |
| OxA-20547 | II | 2022 | IA I | charcoal | -25.9 | 3162 | 34 | 1500-1330 BC |
| OxA-20660 | IV | 4004 | IA I | charcoal | -23.3 | 3021 | 28 | 1390-1130 BC |
| OxA-20658 | IV | 4010 | IA I | charcoal | -26.5 | 2990 | 29 | 1370-1130 BC |
| OxA-20738 | II | 2034 | LBA | charcoal | -23.9 | 3362 | 34 | 1740-1535 BC |
| OxA-20546 | IV | 4016 | LBA | charcoal | -23.1 | 3225 | 30 | 1610-1430 BC |
| OxA-20659 | IV | 4026 | LC | charcoal | -26.5 | 4909 | 33 | 3760-3640 BC |
| OxA-20657 | IV | 4027 | LC | charcoal | -24.2 | 4791 | 32 | 3650-3520 BC |

The two other excavated sites of the Qazvin plain, Tepe Ismailabad and Tepe Shizar, are both small sites located in the highland/mountainous region to the north of the Qazvin plain that is more suitable for grazing of animals/transhumant life and agriculture. Tepe Ismailabad is located to the north-west of the present city of Qazvin and is 100 × 70 m in size and has 4.50 m of archaeological deposits. The upper layers present evidence of *Early Bronze Age* while the lower layers consist of materials of the *Late Chalcolithic* period.

Tepe Shizar is a mound 19 m high located in a mountainous area, geographically a corridor valley linking the Central Plateau with the central western Zagros Mountains. A stratigraphic trench was opened in the site in 2006, and although 17 m of cultural deposits were excavated, the team could not reach virgin soil (Valipour 2006). A total of 52 contexts were recorded in trench I and 53 contexts in trench II. Based on radiocarbon dating and relative chronology, trench I covers the two main periods of *Bronze* and *Iron Age* occupation. Trench I produced only one *Bronze Age* date, 2570-2350 BC from context 1047 (Table 7.3). The latest radiocarbon dates from trench II are *Bronze Age* in date, spanning 2870-2620 BC (context 2034) and 2880-2620 BC (context 2013). Due to a lack of charcoal samples, however, the team could not date the whole sequence (Table 7.3). For example, there are no radiocarbon dates for the period between 3800 and 2890 BC, but based on the presence of *Early Bronze Age II* and *Middle Bronze Age/Kura-Araxes* ceramic types in burnished grey wares and red-slipped wares at the site there was continuity

of occupation throughout this period. The cultural materials from trench II at Tepe Shizar span the *Late Chalcolithic* and *Middle Bronze Ages*. In the lower layers of Tepe Shizar, *Dalma*-type ceramics were also recorded. This type of ceramic compares with that seen at Tepe Soha Chai in Zanjan, where it is dated between 4200 and 4000 BC. As we will see later in this paper we suggest the *Kura-Araxes* period at Tepe Shizar possibly started during the *Early Bronze Age II* period with no evidence of *Early Bronze Age I*, but we need larger excavations at the site to demonstrate exactly when this phase began.

By comparing the radiocarbon dates of Tepe Ghabristan and Shaizar it appears that there was a gap in settled occupation between 3550 and 1700 BC. In the hilly flanks and mountainous area there is short gap between c. 3500 and 2900 BC when *Kura-Araxes* cultural material appears.

Relative chronology and cultural interaction: a view from the ceramic evidence

During the *Middle* and *Late Chalcolithic* periods and the *Bronze Age*, a variety of painted and unpainted ceramics were recorded at various sites in the Tehran and Qazvin plains, which are significant for the study of the degree of cultural interaction through time and space and also for investigating questions regarding relative chronology. It seems that distinctive intercultural relationships within the Central Plateau started in the second half of the sixth millennium BC (Fazeli *et al.* 2009). The widespread distribution

Table 7.3. Calibrated and modelled dates from Tepe Shizar assuming a single sequence from Trench II to Trench I (Pollard *et al.* 2012).

| Sample no. | Trench | Context | Phase | Material | δ ¹³ C | ¹⁴ C age | Error | Range (2σ 95.4%) |
|------------|--------|---------|--------|----------|-------------------|---------------------|-------|------------------|
| OxA-18106 | I | 1002 | IAI | charcoal | -20.2 | 2836 | 28 | 1110-910 BC |
| OxA-18107 | I | 1007 | IAI | charcoal | -24.6 | 2925 | 28 | 1260-1020 BC |
| OxA-18108 | I | 1008 | IAI | charcoal | -21.8 | 3034 | 27 | 1395-1210 BC |
| OxA-18201 | I | 1016 | IAI | charcoal | -24.7 | 3333 | 29 | 1690-1530 BC |
| OxA-18202 | I | 1021 | LBA | charcoal | -23.9 | 3334 | 30 | 1690-1525 BC |
| OxA-18109 | I | 1029 | LBA | charcoal | -24.0 | 3467 | 29 | 1880-1690 BC |
| OxA-18110 | I | 1047 | EBA | charcoal | -21.9 | 3961 | 30 | 2570-2350 BC |
| OxA-18255 | II | 2013 | EBA | charcoal | -24.2 | 4143 | 35 | 2880-2620 BC |
| OxA-18203 | II | 2017 | EBA | charcoal | -22.8 | 4106 | 32 | 2870-2505 BC |
| OxA-18204 | II | 2031 | EBA | charcoal | -24.9 | 4174 | 33 | 2890-2630 BC |
| OxA-18205 | II | 2034 | EBA | charcoal | -25.7 | 4137 | 32 | 2870-2620 BC |
| OxA-18206 | II | 2048 | M & LC | charcoal | -24.8 | 5123 | 32 | 3990-3800 BC |
| OxA-18207 | II | 2048 | M & LC | charcoal | -24.9 | 5127 | 32 | 4030-3800 BC |
| OxA-18334 | II | 2050 | M & LC | charcoal | -25.4 | 5152 | 32 | 4040-3810 BC |
| OxA-18208 | II | 2051 | M & LC | charcoal | -25.3 | 5184 | 33 | 4050-3950 BC |

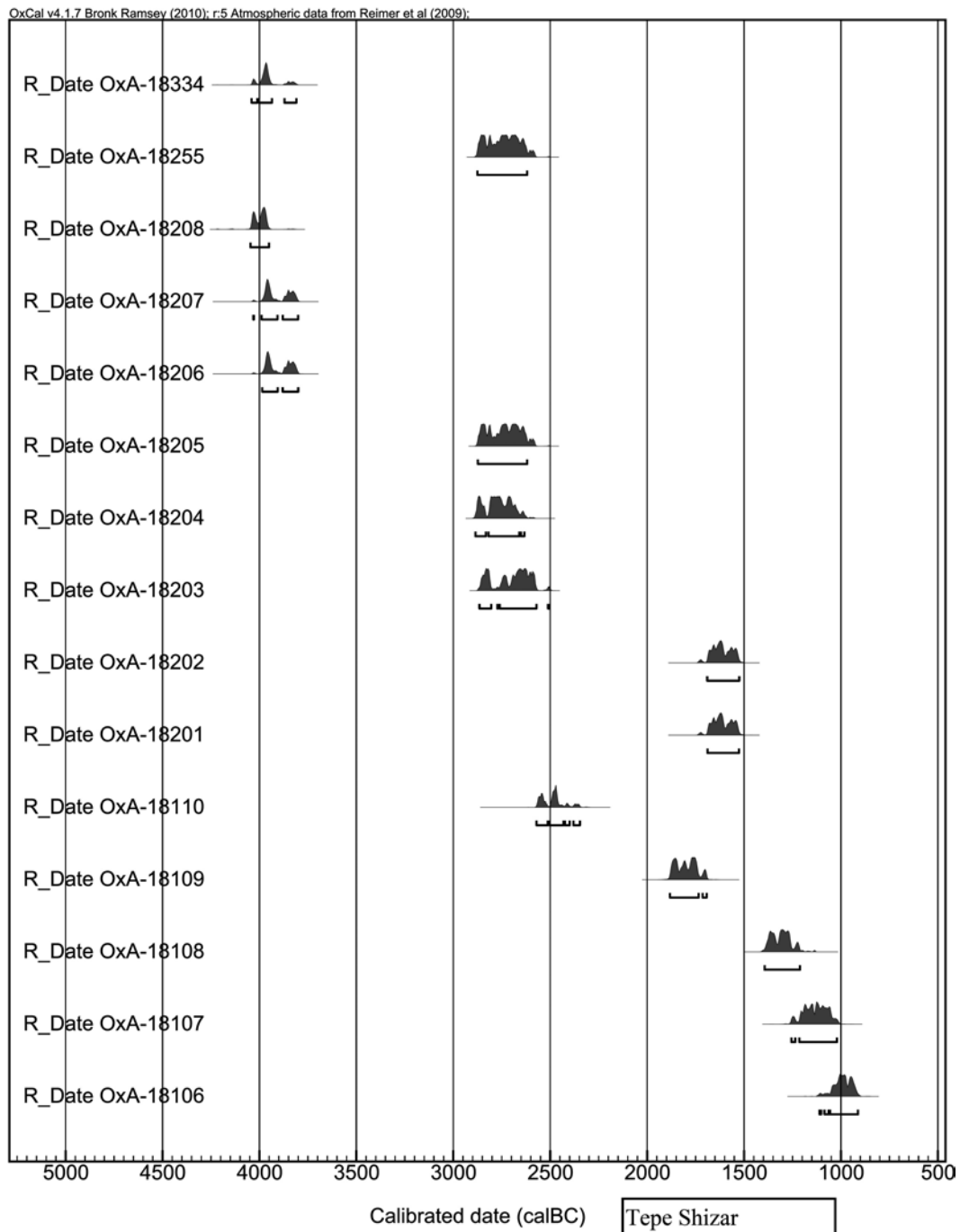


Figure 7.5. Calibrated and modelled dates from Tepe Shizar assuming a single sequence from trench II to trench I.

of *Sialk I* buff ware ceramics at settlements on the Tehran, Kashan, and Qazvin plains indicates a degree of interaction between the inhabitants of these plains during the second half of the sixth millennium BC. The fifth millennium BC saw the importation of raw materials and finished products such as turquoise, agate, carnelian, shells, as well as differentiation in mortuary practices, ritual activities, specialisation in craft production, long-distance trade, and intra-settlement relationship (Fazeli and Abbasnegad 2005). From the current data it seems that ranked societies

emerged on the Iranian Central Plateau during the fifth millennium BC, and continued in the fourth millennium BC (Helwing 2005a; Matthews and Fazeli 2004).

The ceramic evidence then suggests that from 3700 to 3400 BC some form of cultural relationships was established between the Iranian Central Plateau, central Zagros, south-western Iran, and Mesopotamia. During the *Bronze Age I* period there appear to have been new dynamics in play. The northern parts of the Central Plateau appear to be linked to northwest

Iran, as indicated by the appearance of *Kura-Araxes* ceramics, and to southwest Iran, as indicated by the appearance of *Proto-Elamite* material. In order to understand the nature and chronology of these dynamics on the north Central Plateau, we have classified the ceramics of the two plains into four major categories:

1. Ceramics that can be characterised as typical of the Iranian Central Plateau occurred mostly between 3700 and 3400 BC;
2. *Uruk* Mesopotamian types/initial *Proto-Elamite* (probably occurred between 3400 and 3150);²
3. *Proto-Elamite* occurred mostly between c. between 3150–2900.
4. *Kura-Araxes* types found after c. 3000 BC.

Middle Chalcolithic period

Archaeological evidence indicates that, from 5200 BC onwards ceramics were produced in workshop areas outside domestic spaces within the Qazvin and the Tehran plains in sites such as Tepe Zagheh and Tepe Pardis (Wong *et al.* 2010). Specialisation and centralisation of ceramic production is one of the main characteristics of the *Transitional Chalcolithic* period. The level of socio-economic differentiation established during the fifth millennium BC became more complex during the fourth millennium BC through the production of metal and ceramics in workshops at Tepe Ghabristan, which were spread across an area nearly 4 ha in size. A number of specific technological innovations in ceramic production are very characteristic of the *Middle Chalcolithic* period, including the use of the wheel and the firing of a variety of ceramic vessels in large kilns (Fig. 7.6).

The *Middle Chalcolithic* period is characterised by both red and cream/buff fabric ceramics, which have been described in detail by Majidzadeh (2008), who classified the period as *Ghabristan II*. The majority

of the *Middle Chalcolithic* ceramics consists of, a) fine painted pottery; and b) crusted ware. The painted groups can be subdivided into the three groups: very fine, fine, and thick wares (Fazeli 2007).

FINE PAINTED WARE: The well-burnished painted fine wares were made with the use of a fast wheel and were fired in kilns at a high temperature (Wong 2008). Both organic and inorganic temper was used to prepare the clay and the finished ceramics were covered with a fine wash slip. The majority of fine painted wares consists of, 1) tall bowls with open rim and concave base; 2) bowls with trumpet base; and 3) small open bowls (Fig. 7.7). These forms are found widely distributed at sites including Tepe Ghabristan (Fazeli 2007), Tappeh Sialk (Ghirshman 1939), Tepe Cheshmeh-Ali (archive of the Pennsylvania Museum, Oriental Institute of the University of Chicago), Mafinabad, and Sadeghabadi (Fazeli 2001).

Approximately two-thirds of the exterior of these bowls was carefully decorated with geometric, plant, and animal designs. In general there is an increased range of designs in this period, which includes geometric motifs such as hatched bands, hour-glasses, alternately inverted filled triangles, parallel wavy bands with vertical hatching, combs and unilateral ladders, and representational motifs such as animals, birds, and plants. Spiral plants, both plain and decorated, and goats with decoration between the horn and body are also characteristic of this period (Fig. 7.8).

CRUSTED PAINTED WARES: based on the technology and the quality of firing, crusted painted wares can be divided into types: 1) wheel-made painted storage jars with the temper of organic materials, which are well fired; 2) handmade red storage jars tempered with organic material, which are low-fired (Fig. 7.9). From a technological point of view, usually the lower parts are made by sequential slab and the upper part is made

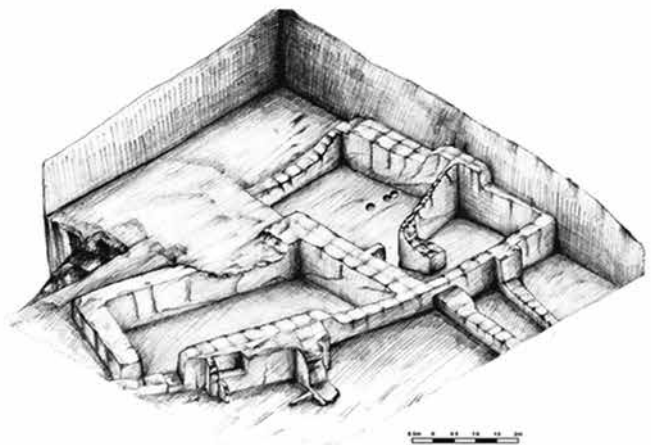
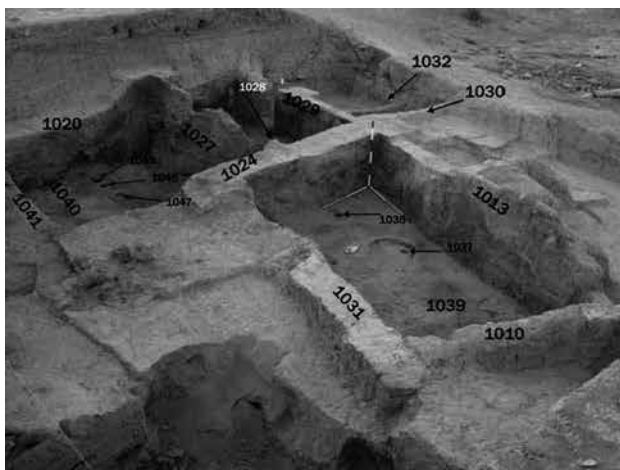


Figure 7.6. Three-dimensional plan of the Middle Chalcolithic period ceramic kilns at Tepe Ghabristan.



Figure 7.7. Examples of the three major fine painted ware of Tepe Ghabristan (from left to right): 1) tall bowls with open rim; 2) bowls with trumpet base; and 3) small open bowls.

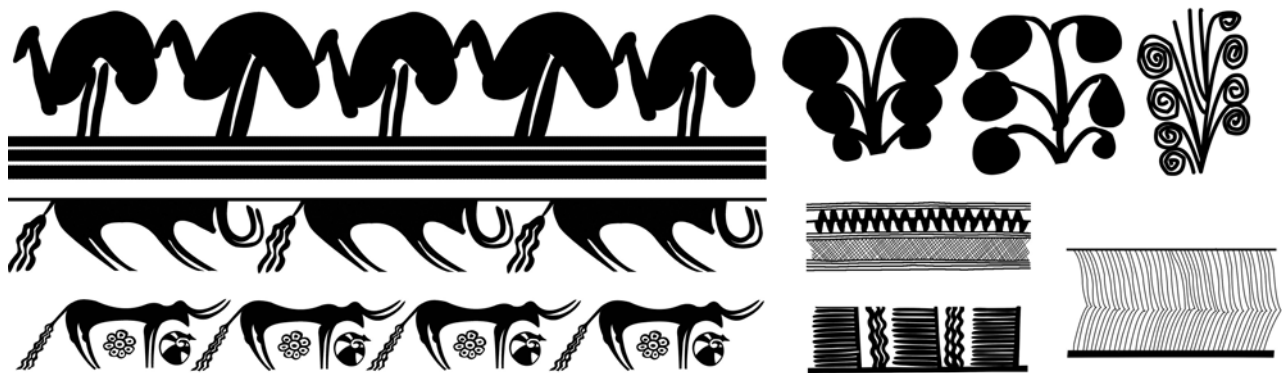


Figure 7.8. Different motifs on Middle Chalcolithic pottery from Tepe Ghabristan.



Figure 7.9. Crusted painted wares: 1) wheel-made painted storage jar; 2) handmade red storage jar.

by coil techniques. The wheel-made large jars were fired while it seems the handmade vessels were fired in open kilns at a lower temperature. The wheel-made ceramics have simple everted rims and the upper part of the ceramic is painted with simple horizontal lines. About two-thirds of the storage jars have a cylindrical body and a sharp carination at the join with the small base. The surface is covered with a thick layer of slip. It is likely that many examples of these storage vessels were sunk and/or fixed in the floor. The whole surface of the handmade red storage jars was painted elaborately with both geometrical and animal designs such as the goat and snake. For example in Figure 7.9 (at right), three snakes are vertically depicted on the neck, and horizontal hatched motifs were added into the large goat with horns turned to the back. This indicates high investment of time on the production of even the crusted ware.

GREY WARE: the fourth-millennium BC grey ware of the Qazvin plain is different from the contemporary *Uruk*-type grey ware of Mesopotamia in respect of manufacturing technology, form, and decoration (Fig. 7.10). Burnished grey ware, initially thought by Majidzadeh (2008) to be restricted to Ghabristan, has since been found at other sites such as Ismailabad in Qazvin in a recent survey, and also at Tepe Ozbaki (Majidzadeh 2001: 143) and in Tappeh Sialk *Period III₆₋₇* (Nokandeh 2010). This is a handmade ceramic of dark grey to black fabric with a high proportion of organic material for temper; it is also slipped and highly burnished on both surfaces. The grey ware is either plain or decorated with incised motifs of parallel lines and diagonal or horizontal hatched alternating upright and inverted triangles with shared borders (Majidzadeh 2008). Grey fabric sherds are present in small numbers in the lower levels of the *Middle Chalcolithic* period and steadily increase through the *Late Chalcolithic*. Light-brown fabric ceramics, which in all other respects are similar to the grey ware, including the incised decoration, have also been recovered. This variety has been mentioned by Majidzadeh who considered it to be

of the same ceramic tradition. It is possible that these are examples of grey ware vessels that were not fired properly – i.e. too much oxygen came into the kiln, so they fired brown instead of grey. Majidzadeh (1977: 191–94; 1981) attributed the occurrence of the grey ware to the migration or invasion of new people from outside the Central Plateau. Grey ware is present in small numbers in the early *Middle Chalcolithic* levels, however, and its production increases in the later *Middle Chalcolithic* and the *Late Chalcolithic* levels, providing evidence of a very gradual introduction and increasing use of grey ware over time. Such a pattern indicates an internal innovation rather than a sudden introduction by an unknown conquering people. The so-called “grey ware”, therefore, should be seen as an innovation that took place within the north-western Central Plateau tradition rather than as a result of migration. Furthermore, there is no parallel in either forms or decoration in the *Kura-Araxes* region or Mesopotamia in this period.

SIMPLE BUFF WARE: this buff ware was made by sequential technique and used large organic materials for temper. These ceramics were fired at a relatively low temperature and appear to have been used for cooking. Simple shallow buff ware vessels have flat bases with vertical rims and a cylindrical body. At Tepe Ghabristan one simple cylindrical flat base with a height of 12 cm was found (Fig. 7.11/1).

SIMPLE RED WARE: simple red ware is very similar to buff ware and its only difference is its colour. This handmade ware was covered with a thick layer of slip and fired at a relatively low temperature. Vessel forms consist of open bowls with concave base that appear in both large and small sizes (Fig. 7.11/2).

Late Chalcolithic period

The *Late Chalcolithic* period is characterised by increased interaction between the Iranian Central Plateau, the central Zagros, and Mesopotamia as attested by the presence of painted buff ware, string-cut bases, and bevel-rim bowls. Except for Arisman,

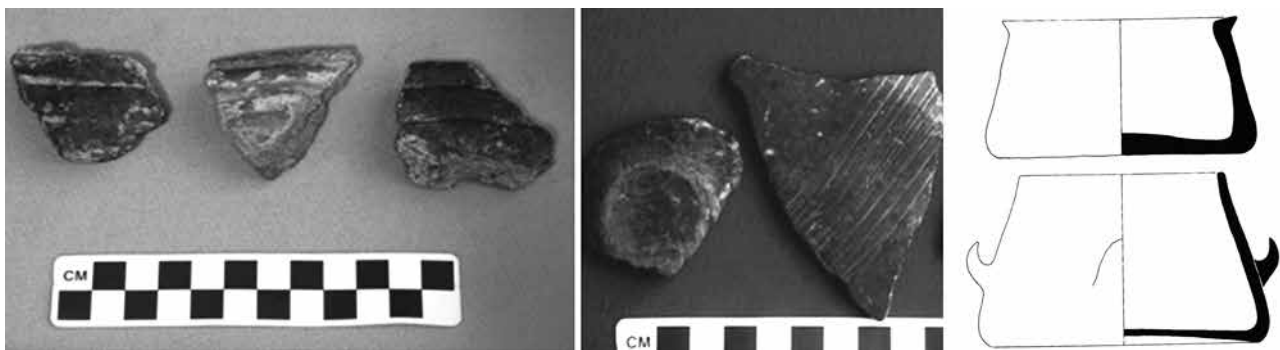


Figure 7.10. Tepe Ghabristan grey ware samples.

most of the information for this period comes from surface data and vertical excavation.

BUFF WARE: very fine wheel-made painted and unpainted buff and/or very pinkish ware has frequently been recovered from the *Late Chalcolithic* period deposits at sites such as Tepe Ghabristan (Fig. 7.12 and 7.13), Tepe Maymoonabad, Arisman, and Tappeh Sialk. Common

forms include vertical and inverted-rim hemispherical bowls of shallow to medium depth, some with a pedestal base painted with rows of animal decoration such as leopards, goats with S-shaped horns, and cups and open bowls with concave and oblique walls, incurving and flared rims, and flat base. A thin wash is typically present on both surfaces. Temper consists mainly of inorganic material and the clay appears well

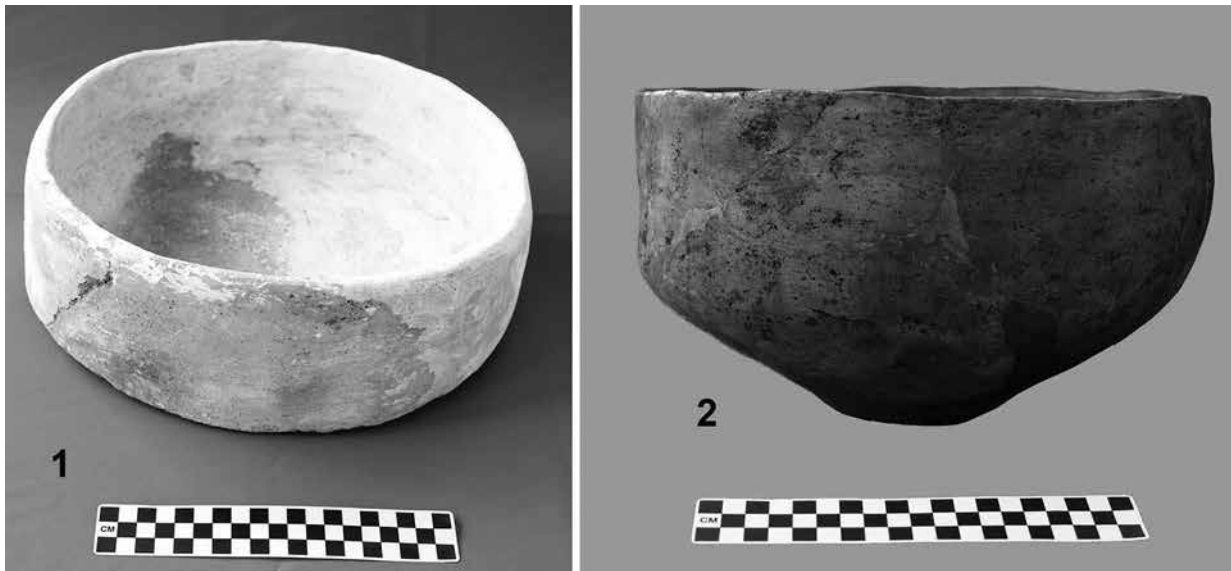


Figure 7.11. (1) Simple buff ware and (2) simple red ware from Tepe Ghabristan.



Figure 7.12. Painted buff ware from Tepe Sagzabad.

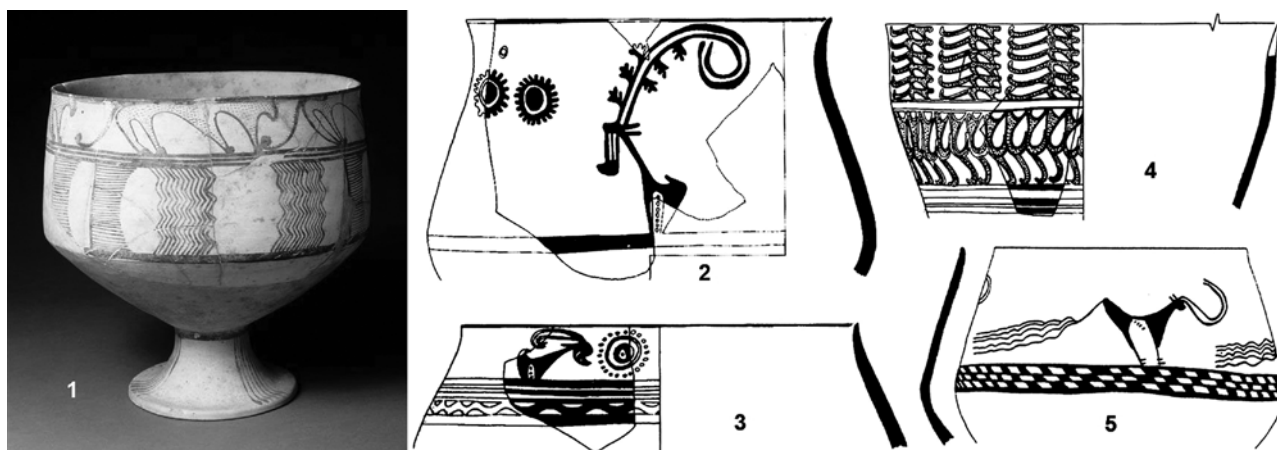


Figure 7.13. Painted buff ware from different sites: 1), 2), 3) and 4) from Tappeh Sialk Period III₆₋₇; 5) from Godin Tepe.



Figure 7.14. String-cut bases from Tepe Maymoonabad.

levigated. Most motifs consist of geometric designs but stylised animals such as goats, leopards, cattle, and birds were found in abundance.

The presence of some of the typical Iranian Central Plateau ceramics such as buff wares at sites such as Godin Tepe (Rothman and Badler 2011; Rothman, this volume) indicates that a degree of interaction and communication had been established with the central western Zagros during the second half of the fourth millennium BC.

STRING-CUT BASES: very few samples of string-cut bases were recovered from Tepe Ghabristan during the excavations in 2006 from the disturbed layers above the *Middle Chalcolithic* layers. String-cut bases were found in *Late Chalcolithic* period deposits, however, at Tepe Maymoon Abad on the Tehran plain (Fig. 7.14). Use of the wheel indicates a specific skill level and also attempts to reduce the amount of time spent on ceramic production. The vessel must first be thrown enough to be quite symmetrical (Badler 2002). Unfortunately the small number of string-cut bases on the two plains does not permit analysis of the shapes and forms, but they all appear to come from small bowls.

BEVEL-RIM BOWLS: during the *Late Chalcolithic* period there was a change in the choice of physical characteristics of the ceramics that were utilised on the Tehran and Qazvin plains, as attested by the adoption of coarse ceramics such as bevel-rim bowls. The bevel-rim bowl is the most obvious example of utilitarian coarse ceramics found in the *Late Chalcolithic* sites of Ghabristan (Fig. 7.15), Maymoonabad, Cheshmeh-Ali, and Tappeh Sialk III_{6,7}. At Tepe Ghabristan, 50 bevel-rim bowl fragments were found in the workshop areas, and small numbers have also been recorded at other *Chalcolithic* sites (Potts 2009; see also Mayyas *et al.* 2012). Bevel-rim bowls have a widespread distribution during the fourth millennium BC in the Near East, especially in Mesopotamia, Iran, and Anatolia (e.g. Millard 1988; Nissen 1988; Algaze 1989; Buccellati 1990; Stein and Misir 1994; Brown D. 2000; Matthews and Fazeli 2004; see particularly the review by Potts 2009).

Many authors have considered the purpose of these bowls depending on their production characteristics, abundance, standard size, and presence in specific archaeological contexts, particularly alongside symbolic or administrative artefacts (Adams 1960: 9;

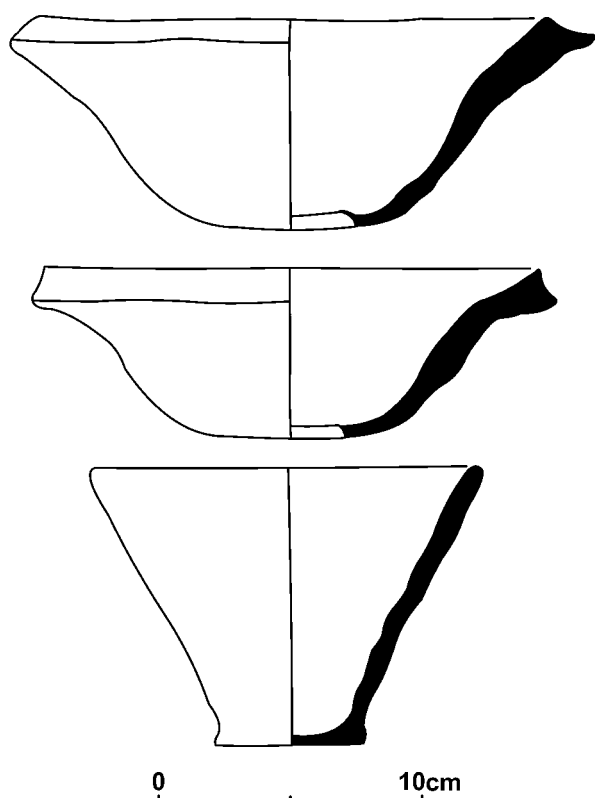


Figure 7.15: Bevel-rim bowls from Tepe Ghabristan (Majidzadeh 2008).

Nissen 1970: 137; Beale 1978; Millard 1988; Buccellati 1990; Algaze 1993; Nissen *et al.* 1993: 14, 70). In terms of function, there is a range of evidence that suggests that bevel-rim bowls were used as bread containers or/and moulds for baking bread (Millard 1988; also Potts 2009; Goulder 2010).

Early Bronze Age I

As was explained earlier, the two sites of Tepe Shizar and Ismailabad represent the cultural periods of the early third millennium BC and so far there is archaeological evidence to fill the gap from 3550 to 2900 BC within the region. There was also a hiatus in occupation at Tepe Ghabristan and Sagzabad from 3500 to 1700 BC. The *Kura-Araxes* material culture is distributed across a vast area, stretching from the Caucasus, across northern Mesopotamia and into the central Zagros (Young 1966; Burney and Laing 1971; Kiguradze and Sagona 2003; Rothman and Kozbe 1997; Kushnareva 1997; Rothman and Badler 2011). In the north-west of Iran sites such as Tepe Baroj (Alizadeh and Azarnoush 2002), Goy Tepe K1-2 (Brown 1951), Geglar Tepe B, Yanik I-II (Burney 1962, 1964), and Haftavan Tepe VII-VIII (Burney 1970, 1973, 1975) have evidence of *Kura-Araxes* material

culture. The chronology of the *Kura-Araxes* period has been divided into 3500–3000 BC for the *Early* (KA I), 3000–2700 BC for the *Middle* (KA II), and 2700–2200 BC for the *Late Kura-Araxes* (KA III) periods (Peasnell and Rothman 1999; Rothman and Kozbe 1997). The appearance of *Kura-Araxes* material in the central western Zagros is seen at sites such as Godin IV (Young and Levine 1974; Rothman 2011, this volume) and third-millennium BC Tepe Gurabin, which appears to correspond to the *Kura-Araxes II* period. As we will see below, the *Early Bronze Age II/Kura-Araxes* ceramics of Tepe Shizar belong to a period ranging from c. 3000 to 2700 BC. At Tepe Shizar on the Qazvin plain, four main categories of pottery were recorded:

1. Red pottery (simple and painted);
2. Buff pottery (simple and painted);
3. Grey ware;
4. *Kura-Araxes* type.

RED WARE: Simple red ceramics are covered with red slip on the surface with a buff and red colour core. The surfaces of some sherds have traces of smoke, which indicates that they were used for cooking. The ceramics are well fired and have inorganic materials used for temper. Forms include bowls, jars, and plates. Most of the vessel forms are small or large bowls. The large bowl forms have open mouths and the body varies from hemispherical to vertical. Small bowls include open forms with concave base and everted rim. Some small bowls have a carination on the body. Large bowls have flat bases and some have a carination on the body. Small storage jars have a hemispherical body with everted rim. One sample has a handle comparable in form to some from the *Kura-Araxes* assemblages (Fig. 7.16). Only three painted black-on-red sherds were found, which are technologically very similar to the simple red types, and come from small bowls painted with simple geometric designs (Fig. 7.17).

BUFF WARE: simple buff wares were recorded in trench I, and very few samples came from trench II. As far as the technology is concerned there is differentiation in the manufacture of the ceramics from the beginning to the end of the use of this type of ceramic. The pottery of trench I has a thick layer of buff slip and is not considered to be fine ware. The simple buff wares of trench I are handmade, well fired, and the temper is of organic materials. Forms consist of closed rim bowls and beakers (Fig. 7.18). The simple buff wares of trench II have both organic and inorganic temper with a thick slip, and can be classified as fine wares. Both wheel-made and handmade techniques were used in the production process. Large jars and bowls are the main group of forms found in trench II (Fig. 7.19). Painted buff wares were found in both trenches but did not consistently occur in all layers. The colour of the paint is usually brown but very rarely black was also used. Common designs consist of horizontal

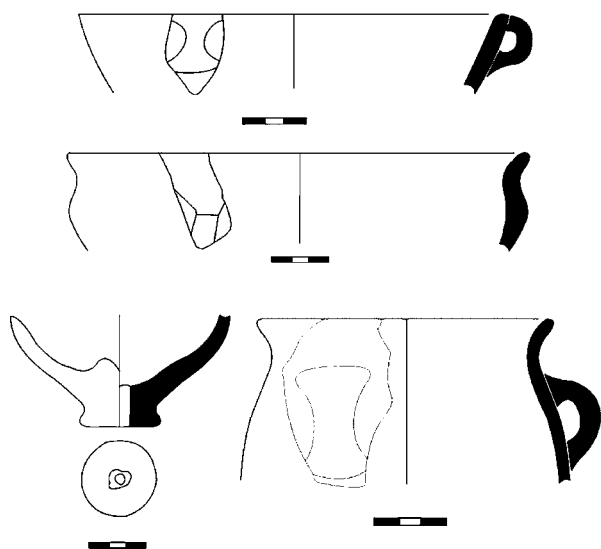


Figure 7.16: Simple red wares.

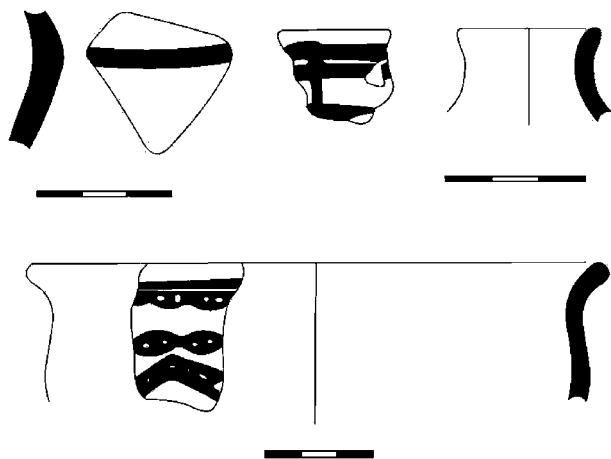


Figure 7.17: Painted red wares.

and vertical geometric lines. Usually most of the paint was applied on the exterior surface, but very rarely on the inside of the vessels. Most of the painted buff fragments were body sherds, making it very difficult to comment about the range of forms, although some belong to small bowls with vertical body and everted rim (Figs 7.20–7.21). The painted buff vessels were wheel-made and decorated with geometric designs.

GREY WARE: this type of pottery was only found in trench I and consists of very dark to light grey fabric that in some cases has a red core. The ceramics are well fired, and organic temper was used for both handmade and wheel-made vessels. Some sherds were also burnished and there are both simple and painted wares. Forms consist of jars and bowls. Bowls appear in two sizes, small and large. Small bowls have an S-shaped body, although there are also open bowls and some with a hemispherical

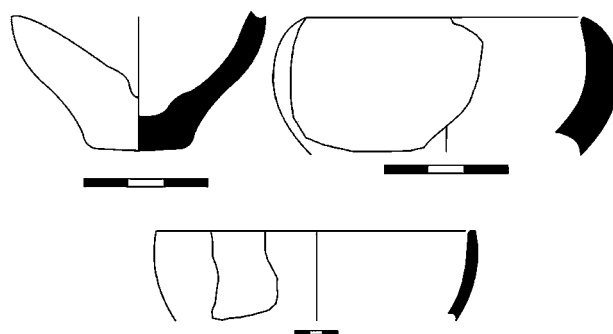


Figure 7.18: Simple buff ware from trench I.

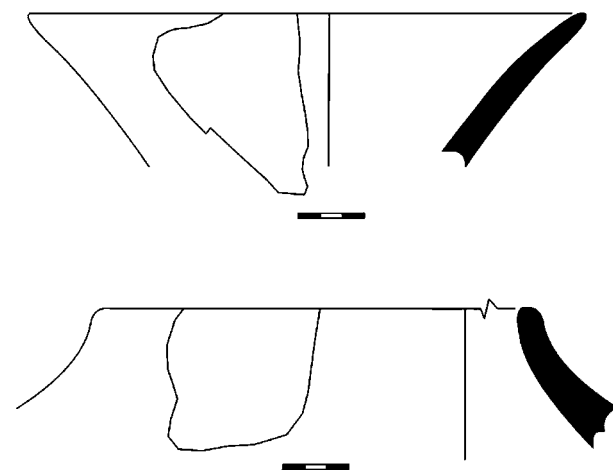


Figure 7.19: Simple buff ware from trench II.

body. Large bowls have a flat base, and close to the rim it flares out from the hemispherical body (Fig. 7.22).

KURA-ARAXES CERAMICS: the burnished fine black *Kura-Araxes* ceramics are one of the important groups of Tepe Shizar (Fig. 7.23), which technologically can be compared with the material from other contemporary sites in the central Zagros of Iran. The *Kura-Araxes* wares consist of both simple and painted groups. Engraved and painted decoration was applied mostly in the upper parts of vessels close to the neck and consist of horizontal zigzags, points, and sun-like shapes, etc. Forms consist of bowls, jars, and beakers and some have handles with a flat base. The ceramics of Tepe Shizar can be compared with the site of Tepe Gourab in Malyer and also with Tepe Doranabad on the Qazvin plain (Fazeli and Abbasnegad 2005).



Figure 7.20. Painted buff ware from trench I.

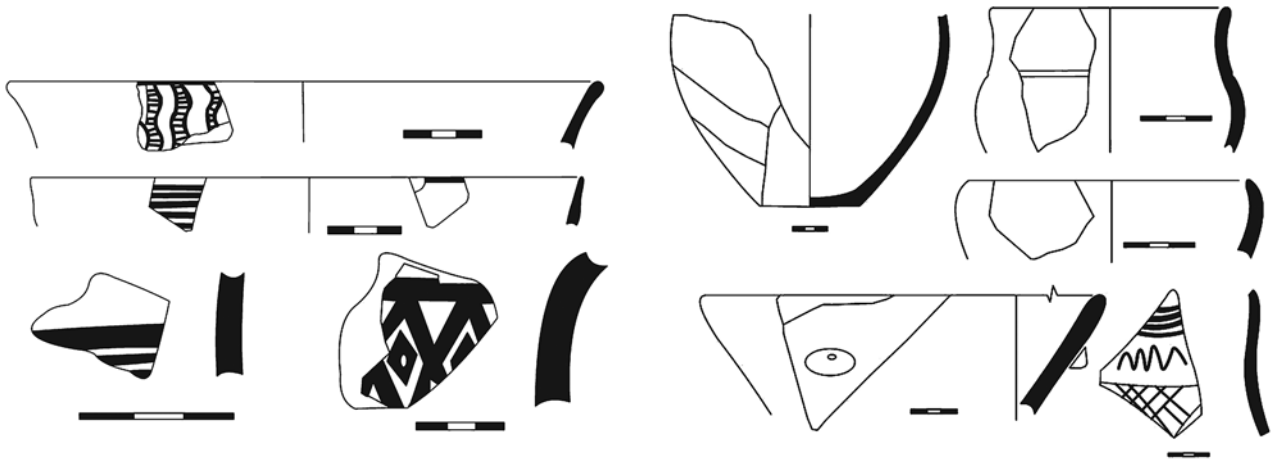


Figure 7.21. Painted buff ware from trench II.

Figure 7.22. Grey ware ceramics.

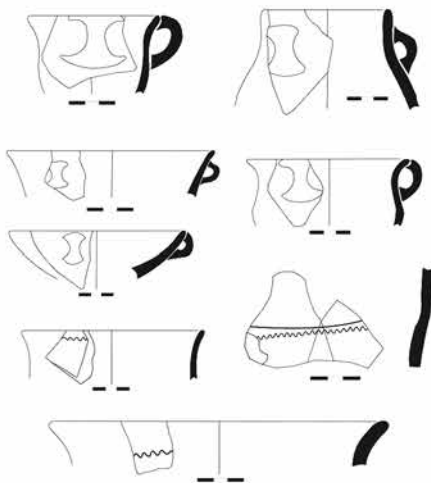


Figure 7.23. The Kura-Araxes ceramics from Tepe Shizar.

PROTO-ELAMITE CERAMICS: Hessari's recent publication indicates the following pottery types in Tepe Sofalin (Fig. 7.24; Hessari and Akbari 2007). A similar ceramics assemblage was also found at Qoli Darvish (Fig. 7.25), Tappeh Sialk, and Arisman. Most of the ceramics from Tepe Sofalin are comparable with those of the above-mentioned sites and consist of:

1. Bevel-rim bowls;
2. Pedestal-based goblets;
3. Banesh trays (*Uruk* tray);
4. Hole-mouth wares;
5. Drooping spout wares;
6. Everted wares;
7. Folded wares;
8. Ledge rim ware (Hessari 2011).

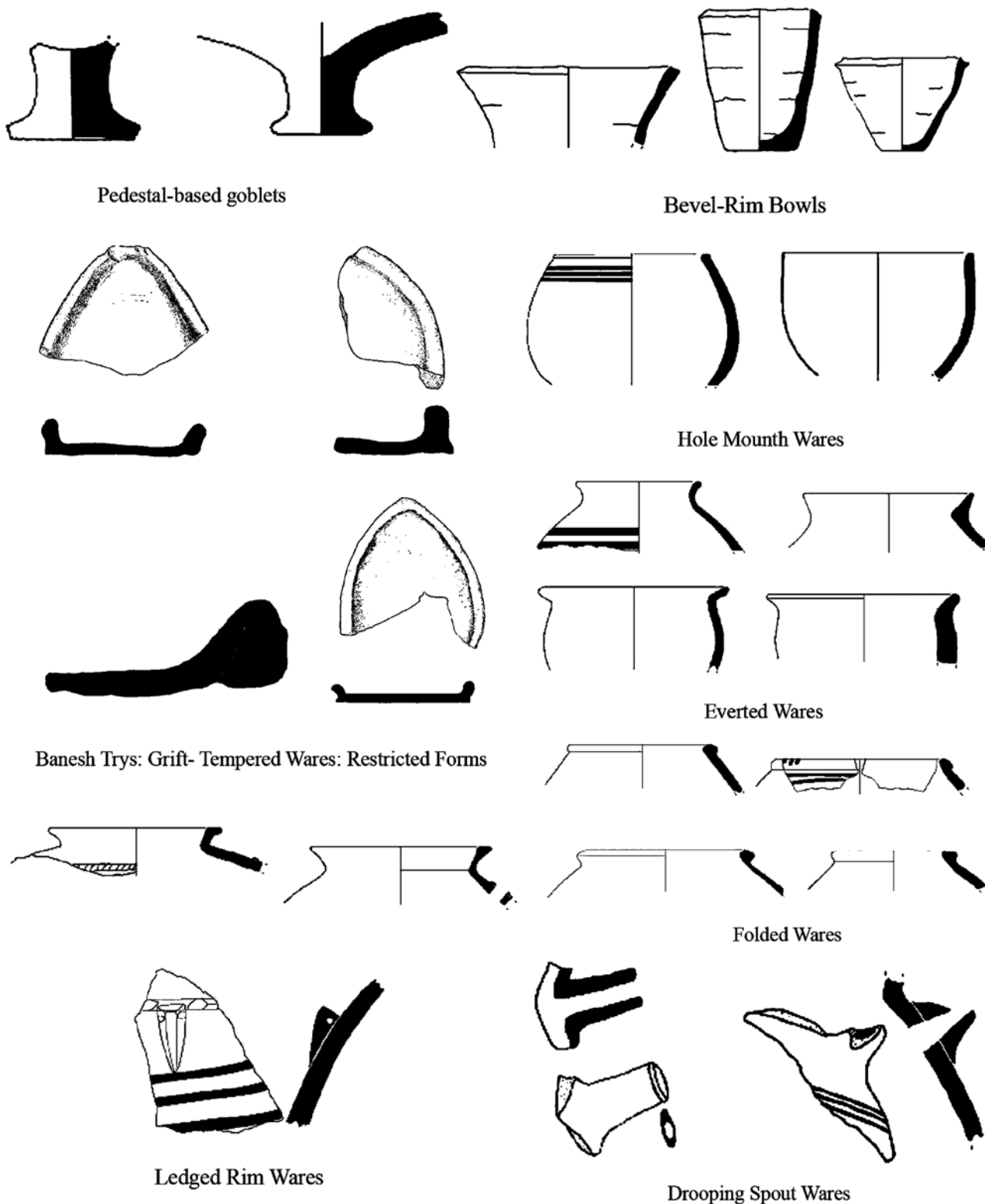


Figure 7.24. The Proto-Elamite ceramics from Tepe Sofalin.

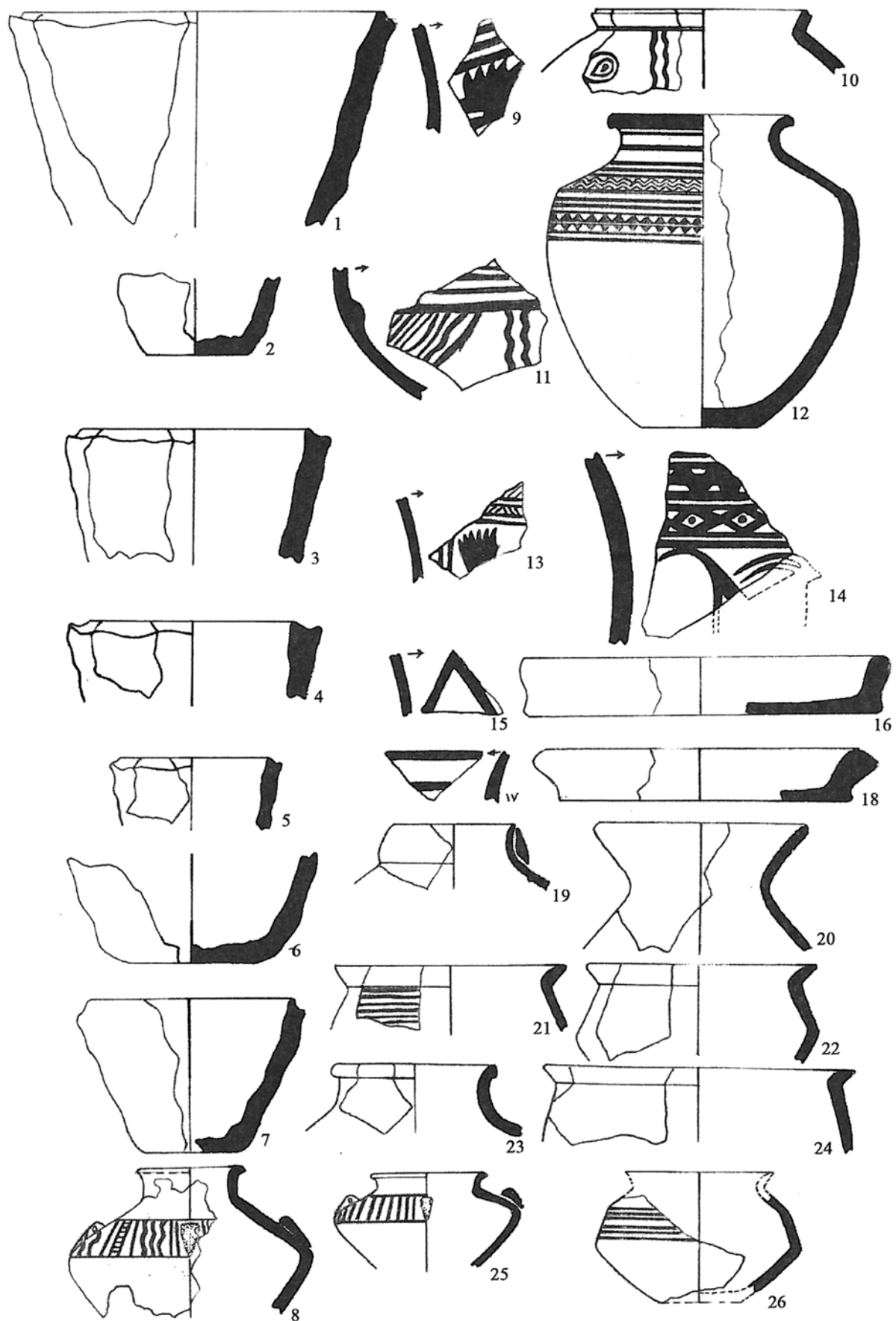


Figure 7.25. The Proto-Elamite ceramics from Tepe Qoli Darvish.

The waste materials, slag, and kiln remains from the site also indicate local production of *Proto-Elamite* ceramics. Administrative artefacts from the site include tokens with the different shapes ranging from simple spheres to cones, rectangles, triangles, bi-conoids, and even jugs and animals. One example of a clay bulla was also found, bearing the impression of a cylinder seal, revealing administrative activities. Dahl *et al.*'s (this volume) analysis of the *Proto-Elamite* tablets found at Tepe Sofalin reveals similarities to the tablets from Susa, and Dahl *et al.* suggest that there were links between the two settlements during the *Proto-Elamite* period.

Conclusion

A long history of occupation on the plains to the south of the Alburz Mountains is demonstrated in Table 7.1. Chronological studies within the above regions started in the 1930s with the excavation of Tepe Hissar (Schmidt 1937) and have continued up to the present (e.g. Sarlak 2011; Vatandoust *et al.* 2011). Such studies indicate that agricultural village societies first appeared on the north Central Plateau around c. 6000BC. In chronological terms, the beginning of the settled occupation up to the end of the *Bronze Age* can be summarised as follows:

1. Gap in occupation at the *Neolithic* sites of Chahar Boneh;
2. It is clear that there is a gap in occupation at many settlements on the Qazvin, Tehran, and Kashan plains during the fifth millennium BC. For example, there is a large gap between the two settlements of Tappeh Sialk North and Tappeh Sialk South of at least 600 years. Such an interruption occurred in many settlements of the Qazvin plain (Fazeli *et al.* 2005, 2009; Pollard *et al.*, 2012). For instance, Tappeh Sialk North was abandoned at c. 4900 BC and from then until 4600 BC there is a period of alluvial sedimentation which may be associated with the cause of site abandonment;
3. As discussed above, there is little persistence in settlement occupation on the Tehran and Qazvin plains during the fourth and third millennia BC. There is a gap in occupation of up to 1700 years at large settlements, c. 1700–1800, such as Tepe Ghabristan (*Late Chalcolithic*) and Tepe Sagzabad (*Late Bronze Age*). No strong archaeological evidence supports the continuity of occupation in other parts of the plain, although there is some evidence that small-scale occupation continued in the hilly flanks, but with some interruption. Tepe Shizar is one example in which even in the mountainous area there is a gap from c. 3500 to 2900 BC.
4. In 2011 the site of Maymoonabad was excavated under the direction of Rohollah Yousefi mainly for

chronological purposes. His excavation indicates that, while some parts of the site are represented with 6 m of *Sialk III*₆₋₇ ceramics, other parts show less than 2 m of *Uruk* cultural materials and architecture (Yousefi, personal communication), which is similar to the sequence seen at Arisman, where there was a sudden shift in the location of the settlement between the two periods (Helwing, this volume). Helwing (2006) also proposed the terminology of a *Proto-Elamite* transitional period (3400–3100 BC) parallel with the cultural layers of Tepe Maymoonabad.

5. Related to the beginning of the *Proto-Elamite* within the Central Plateau, although Arisman somehow fills the gap between the *Late Chalcolithic* and *Early Bronze Age 1*, there is a gap in occupation of around 300 to 200 years in many settlements. In some settlements there is evidence of a short period of *Proto-Elamite*, but there is no archaeological information from c. 2900 to 1700 BC in the Qazvin, Tehran, Kashan, and Qom plains.

More archaeological evidence is needed to establish whether there was some type of economic crisis or whether socio-political factors caused the abandonment of sites, or even whether environmental factors caused system change. The recent palaeo-environmental studies within the Kashan plain (Simpson and Kouramps *et al.* in press), the Tehran plain (Gilmore *et al.* 2007), and the Qazvin plain (Schmidt *et al.* 2011) support the theory that environmental factors such as Holocene climate change and environmental catastrophes such as earthquakes, floods, and volcanoes may have caused changes in cultural behaviour, social complexity, and human settlement patterns (e.g. Berberian and Yeats 2001; Haug *et al.* 2003; Brooks 2006; Staubwasser and Weiss 2006; Kaniewski *et al.* 2008). Many settlements in Iran, including sites on the Iranian Central Plateau, are situated on active alluvial fans, which pose flood and sediment inundation hazards, but provide fertile soils for agriculture. Furthermore, many settlements are situated close to active faults, which are sources of large earthquakes but also provide conduits for water, thus justifying the so-called "fatal attraction" of humans to earthquake-prone locations (Jackson 2006; Schmidt *et al.* 2011). We hope that by combining archaeological, climatological, and geological studies in the region in the future, it will be possible to present a better understanding of the human past in this part of Iran.

Acknowledgements

The authors are grateful to Drs Hessari and Yousefi who gave us their unpublished data from the two sites of Sofalin and Tepe Maymoonabad.

Notes

- 1 In the 2011 season of excavation the excavators of Tepe Sofalin found evidence of architectural remains (Hessari, personal communication).
- 2 The information about the settlement history of the Central Iranian Plateau between 3400 and 3150 BC is not exactly clear. In 2011 Rohollah Yousefi excavated Maymoonabad and of the two trenches excavated by him, one revealed cultural materials belonging to the *Sialk III*₆₋₇ period and the second trench provided information on *Uruk* materials. Therefore, by ¹⁴C date of the site and publication of the excavation report, they probably date to the end of the *Late Chalcolithic* period and the beginning of the *Proto-Elamite*.

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